

Glossary

ANSI

American National Standards Institute. ANSI is a private, non-profit membership organization that coordinates voluntary standards in many fields. ANSI encourages the private sector and government to reach agreement on the need for standards and establish priorities.

Arthritis

Inflammation of a joint or joints in the body.

Awkward position

See *Awkward posture*.

Awkward posture

Deviation from the natural or “neutral” position of a body part. A neutral position is one that puts minimal stress on the body part. Awkward postures typically include reaching above or behind, twisting, bending forward or backward, pinching, squatting, and kneeling. Working frequently in awkward postures can cause fatigue, pain, and musculoskeletal injury.

Body mechanics education

Education that emphasizes how best to align the musculoskeletal system during work and other activities to reduce abnormal joint stress, muscle strain, and fatigue.

Bursa

Small, flat, fluid-filled sacs located in those areas of the body where repeated pressure is exerted during movement of body parts, such as the shoulder, elbow, and knee. Bursa allow these body parts to move more easily.

Bursitis

Inflammation or irritation of the bursa, resulting in swelling, stiffness, and pain.

Carpal tunnel

An opening inside the wrist through which the median nerve and several tendons pass. The tunnel is formed by the wrist bones and a dense ligament.

Carpal tunnel syndrome (CTS)

A condition in which there is pressure on the median nerve in the carpal tunnel. The nerve gets squeezed when the tendons swell. Symptoms can include pain, tingling, or numbness in the hand, wrist, or arm. These symptoms are often felt at night.

Cartilage

Thick, white connective tissue attached to the surfaces of bones where they contact other bones, forming a low-friction cushion. It is structurally more rigid than a tendon.

Cervical vertebrae

Seven small irregular bones in the neck that support and allow head movement.

Contact stress

Pressure on one specific area of the body (such as the forearm or sides of the fingers) that can inhibit nerve function and blood flow in that area. It is caused by continuous or repeated contact with hard or sharp objects such as table edges or unpadded, narrow tool handles.

Cumulative trauma disorder (CTD)

An injury that develops over a period of time because of repeated stress on a specific body part, such as the back, hand, wrist, or forearm. Muscles and joints are stressed, tendons are inflamed, nerves are pinched, and/or the flow of blood is restricted. Similar to *Repetitive stress injury*.

Discs

See *Intervertebral discs*.

Disorder

A medical condition in which some body function does not work as it should.

Epicondylitis

An inflammation of the tendons at the elbow. It is also called “tennis elbow” (lateral or outside part of the elbow), or “golfer’s elbow” (medial or inside part of the elbow).

Ergonomics

The science of fitting workplace conditions and job demands to the capabilities of workers’ bodies.

Ergonomics program

A systematic process, often spelled out in writing, for identifying, analyzing, and controlling ergonomic hazards at a particular workplace.

Fatigue

A condition that results when the body cannot provide enough energy for the muscles to perform a task.

Force

The amount of physical effort needed to do a task.

Gangrene

Death of body tissue as a result of a loss of blood flow to the area.

Grip force

Physical force applied by the hand when holding or gripping an object.

Hand-arm vibration

Vibration (generally from a hand tool) that goes through the hand and can travel to the arm and other areas of the body.

Hand-arm vibration syndrome (HAVS)

Numbness, tingling, and whitening of the fingers due to exposure to hand-arm vibration. It is often caused by using vibrating hand tools frequently or for long periods of time. It involves blood vessel damage, such as closure of the digital (finger) arteries.

Herniated disc

A condition where the soft inner part of an intervertebral disc pushes out through a tear in the disc.

In-line grip

A hand tool handle which is straight.

Inflammation

A protective response of the body to infection and injury. Symptoms may include tissue swelling, redness, pain, and a feeling of warmth.

Intervertebral discs

Discs that sit between the bones of the spinal column (vertebrae) in the back and neck. The discs act as cushions or “shock absorbers” between the bones. Discs have a strong outer wall and a soft inner gel.

ISO

The International Organization for Standardization. This is a non-governmental organization, a network consisting of the national standards institutes of 157 countries.

Joint

The area where two bones are attached to allow body movement. A joint is usually formed of ligaments and cartilage.

Ligaments

Strong rope-like fibers that connect one bone to another to form a joint.

Manual material handling

Lifting, carrying, and moving materials without the help of mechanical equipment.

Median nerve

The main nerve passing through the carpal tunnel in the wrist.

Muscle force

Physical force applied with the muscles.

Musculoskeletal disorders (MSDs)

A group of conditions that involve the nerves, tendons, muscles, and supporting structures such as intervertebral discs. The various conditions can differ in severity from mild symptoms once in a while to severe chronic and disabling disorders. Examples include carpal tunnel syndrome, tenosynovitis, tension neck syndrome, and low back pain.

Musculoskeletal system

The soft tissues and bones in the body. The parts of the musculoskeletal system are bones, muscles, tendons, ligaments, cartilage, nerves, and blood vessels.

Nerves

Cordlike fibers that carry the signals controlling body movement and allowing senses like sight and touch to work.

Neutral body posture

The natural position of body parts, the best position to minimize stress. For example, when standing, the head should be aligned over the shoulders, shoulders aligned over hips, hips aligned over ankles, and elbows at the side of the body.

Neutral position

See *Neutral body posture*.

NIOSH

National Institute for Occupational Safety and Health. NIOSH, part of the Centers for Disease Control and Prevention (CDC) under the Department of Health and Human Services, is the federal government agency with a mandate to conduct and fund occupational safety and health research and training.

OSHA

Occupational Safety and Health Administration. OSHA is a federal government agency, part of the U.S. Dept. of Labor, whose mission is to help prevent workplace injuries and protect the health of workers. OSHA adopts and enforces workplace health and safety standards.

Pistol grip

A hand tool handle which resembles the handle of a pistol and is typically used when the tool axis must be horizontal.

Power grip

A grasp in which the hand wraps completely around a handle. The handle runs parallel to the knuckles and protrudes on either side.

Repetitive stress injury (RSI)

An injury caused by working in the same awkward position, or repeating the same stressful motions, over and over. This is one type of *Musculoskeletal disorder*.

Risk factor

An action and/or condition that may cause an injury or illness, or make it worse. Examples related to ergonomics include forceful exertion, awkward posture, and repetitive motion.

Rotator cuff

The main source of stability and mobility for the shoulder. Four muscles and their tendons make up the rotator cuff. They wrap around the front, back, and top of the shoulder joint. They rotate the arm inward, outward, and away from the side.

Rotator cuff tear

A tear in the rotator cuff caused by stress on the shoulder. A tear can make routine activities difficult and painful.

Rotator cuff tendinitis

The most common shoulder disorder, involving inflammation, pain, and often swelling in one or more tendons of the rotator cuff. It is sometimes called “pitcher’s shoulder.”

Ruptured disc

See *Herniated disc*.

Soft tissues

Tissues that connect, support, or surround other structures and organs of the body.

Sprain

Overstretching or overexertion of a ligament, resulting in a tear or rupture of the fibers in the ligament.

Strain

An injury caused by a muscle, tendon, or ligament stretching.

Stress

Demand (or “burden”) on the human body caused by something outside of the body, such as a work task, the physical environment, work-rest schedules, and social relationships.

Tendinitis

Inflammation, fraying, or tearing of tendon fibers, resulting in pain and sometimes swelling.

Tendon

Tough rope-like material that connects the muscles to the bones. Tendons transfer forces and movements from the muscles to the bones. Tendons do not stretch, and excessive force or twisting may cause them to tear or fray like a rope.

Tenosynovitis

Inflammation of the lining of the sheath that surrounds a tendon. The wrists, hands, and feet are the areas commonly affected, although tenosynovitis may occur in any tendon sheath.

Tension neck syndrome (TNS)

Fatigue, stiffness, tenderness, swelling, weakness, or pain in the neck or shoulder area, or headache radiating from the neck. It is caused by strain on various neck and shoulder muscles, often from long periods of looking upward. The trapezius muscle is particularly affected and may develop a “knot.”

Thoracic outlet syndrome

A cumulative trauma disorder of the nerves and blood vessels of the shoulder and upper arm. Symptoms are numbness in the fingers or arm. The pulse in the affected area may weaken.

Trapezius muscle

A large, thin muscle that runs from the upper back through the shoulder area to the neck. Straining this muscle can cause tension neck syndrome.

Trigger finger

A common term for tendinitis or tenosynovitis that causes painful locking of the finger(s) while flexing them. It can be caused by repeated pressure on a finger, such as when using the trigger on a power tool.

Trigger time

The length of time a person can safely use a vibrating power tool, based on its vibration level.

Whole body vibration (WBV)

Working conditions that involve sitting, standing, or lying on a vibrating surface. Excessive exposure may contribute to back pain.

Work-related musculoskeletal disorder (WMSD)

A musculoskeletal disorder caused or made worse by the work environment. WMSDs can cause severe symptoms such as pain, numbness, and tingling; reduced productivity; lost time from work; temporary or permanent disability; loss of motion; inability to perform job tasks; and an increase in workers' compensation costs.